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Protection of the oceans, all kinds of seas, including enclosed and semi-enclosed seas, and coastal areas and the protection, rational use and development of their living resources

Report of the Secretary-General

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INTRODUCTION

1. This report reviews progress in the implementation of the objectives set out in chapter 17 of Agenda 21 1/ (Protection of the oceans, all kinds of seas, including enclosed and semi-enclosed seas, and coastal areas and the protection, rational use and development of their living resources) since the United Nations Conference on Environment and Development (UNCED) in June 1992 and presents a set of recommendations for action. The report and its addendum were prepared by the Subcommittee on Oceans and Coastal Areas of the Administrative Committee on Coordination (ACC) as task manager for chapter 17 of Agenda 21, in consultation with the United Nations Secretariat, in accordance with arrangements agreed on by the ACC Inter-Agency Committee on Sustainable Development. The Subcommittee, which has held three sessions since April 1994, is composed of the following 14 organizations: Division for Ocean Affairs and the Law of the Sea of the Office of Legal Affairs of the United Nations Secretariat, United Nations Conference on Trade and Development (UNCTAD), United Nations Development Programme (UNDP), United Nations Environment Programme (UNEP), United Nations Centre for Human Settlements (Habitat) (UNCHS), Food and Agriculture Organization of the United Nations (FAO), Intergovernmental Oceanographic Commission (IOC) of the United Nations Educational, Scientific and Cultural Organization (UNESCO), World Health Organization (WHO), World Bank, International Telecommunication Union (ITU), World Meteorological Organization (WMO), International Maritime Organization (IMO), United Nations Industrial Development Organization (UNIDO), International Atomic Energy Agency (IAEA).

I. CURRENT STATE AND MAIN TRENDS

2. UNCED recognized that "The marine environment - including the oceans and all seas and adjacent coastal areas - forms an integrated whole that is an essential component of the global life-support system and a positive asset that presents opportunities for sustainable development". 2/ Coastal areas are home to 60 per cent of the world's population. Oceans, which cover 71 per cent of the Earth's surface, contain a vast proportion of the world's biodiversity. They are a major sink for atmospheric carbon and for the toxins and chemical substances (whether natural or man-made) carried by continental effluents and through the atmosphere, as well as a powerful regulator of the world's climate. The importance attached to oceans is further related to four significant factors:

(a) The high density of human population in the coastal zone, often within a narrow band of about 60 km, which creates pressure on a potentially fragile environment and its ecosystems and resources, both coastal and marine;

(b) The progressive degradation of marine and coastal natural resources under the combined effect of excessive rates of use and pollution;

(c) An ever-increasing awareness that the ocean is a basic governing force for life on this planet, particularly for small island countries, and that better understanding of its physical and biological mechanisms, including their

interaction with atmospheric processes, is essential to decision-making aiming at sustainable development;

(d) The recognition that a precautionary approach to ocean development and management is necessary to take into account current uncertainties regarding ocean (and related atmospheric) processes and to protect the options for development available to future generations.

3. Over the past decade there have been rapid and revolutionary changes in political boundaries, in the realignment and refinement of States' rights and duties and in the creation of new legal regimes. The main decision points in this process are represented by the adoption in 1982 of the United Nations Convention on the Law of the Sea (1982 Convention) 3/ and its entry into force in 1994; as of 1 January 1996 the Convention had been ratified by 83 States parties. 4/ The Convention establishes the rights and duties of nations for marine environmental protection and sustainable use and the development of marine resources and provides for dispute resolution.

4. In addition, very important complementary international law and policy were laid down in 1995: the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (United Nations, August 1995); the Code of Conduct for Responsible Fisheries (FAO, October 1995); the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (UNEP, November 1995); and the Jakarta Mandate on Coastal and Marine Biodiversity adopted at the second session of the Conference of Parties to the Convention on Biological Diversity (UNEP, November 1995). Each international agreement and instrument duly recognizes that it has a role in strengthening the implementation of the 1982 Convention and in furthering the objectives of Agenda 21.

5. The full consequences of these changes, in terms of both benefits and problems, have yet to be adequately recognized, however. The expectations associated with the extension of national jurisdiction have only partially been met: concrete knowledge of ocean processes and resources is still incomplete and sparse; short-term economic interests often work against the kind of long-term planning and investment required to extract real benefits.

6. While some relatively new resources, such as most deep-sea mineral resources, ocean energy and some non-conventional fishery resources, may offer opportunities, the sustainability of their development is questionable. The most important traditional ocean resources, including coastal environments and conventional fishery resources, are over-used and require improved management. In many cases, the unrestricted use of technology, the growing demand for goods and services from the ocean, uncontrolled population growth and continuous migration to coastal areas have led to the depletion of living resources and the degradation of the coastal and marine environment as well as of the economic conditions of some of the major sectors exploiting the ocean.

A. Constraints to implementation

7. Chapter 17 of Agenda 21 called for governmental action, with the assistance of the specialized agencies of the United Nations system when required and with the active participation of the people and sectors involved and that of the non-governmental organizations, in order to: (a) improve the use and conservation of coastal resources through integrated management and sustainable development of coastal areas, including exclusive economic zones (programme area A); (b) increase marine environmental protection from land-based and sea-based sources of pollution (programme area B); (c) promote sustainable use and conservation of marine living resources in the high seas (programme area C); promote sustainable use and conservation of marine living resources under national jurisdiction (programme area D); (e) address critical uncertainties for the management of the marine environment and climate change (programme area E); (f) strengthen international and regional cooperation and coordination (programme area F); and (g) promote sustainable development of small islands (programme area G).

8. Without appropriate action by Governments and the relevant economic sectors to improve information systems, research support and programmes, institutions and legal frameworks, the present situation can only worsen. Constraints to progress can be found in the fact that:

(a) Oceans and coastal areas are a finite economic asset yet to be fully understood by Governments, as is also the consequent need for their prudent and rational exploitation, and given commensurable priority in national development plans;

(b) Concerns of Member States, while often based upon similar scientific and socio-economic premises, are voiced by different governmental representatives in different intergovernmental forums and in different ways, depending upon the constituencies, with the result that there is a lack of coherent policy within the United Nations system (at global, regional and national levels);

(c) Most countries have not established national coordination mechanisms that could enhance implementation of chapter 17 of Agenda 21;

(d) The concerns of the private sector and many poor communities are driven by short-term economic priorities that tend to give low priority to resource conservation and the needs of future generations;

(e) Resource constraints, particularly but not only in developing countries, often limit the amount of attention and financial support Governments can devote to scientific research and its application to national policy options;

(f) There has been insufficient awareness of the need to identify and reduce "uncertainties" in human knowledge and their potential consequences, including the consequences for the health of exposed human populations, and thus of the need for a precautionary approach to management and development decisions;

(g) United Nations system efforts with respect to chapter 17 of Agenda 21 need to be based on a coordinated approach embracing scientific, technological and socio-economic factors.

B. Selected achievements 5/

9. Despite these difficulties, significant progress has been made since UNCED in the following areas:

(a) In relation to programme area A of chapter 17, guidelines for integrated coastal area management (ICAM) have been developed for various levels of governance and implementation and are being applied by countries and financing institutions in a growing number of technical assistance projects. As part and in support of these initiatives, the relevant United Nations organizations and mechanisms have developed a cooperative programme framework for ICAM. In addition, in 1995 the Consultative Group for International Agricultural Research (CGIAR) adopted "coastal environment" as the central theme of a system-wide initiative, with the International Centre for Living Aquatic Resources Management (ICLARM) as a lead centre;

(b) In relation to programme area B, the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities was adopted in November 1995 in Washington, D.C. It will provide the basis for national and international action to reduce pollution of the oceans from land-based activities, contributing, inter alia, to: (i) improvement of coastal habitats and productivity; (ii) reduction of threats to food security and safety; (iii) reduction of hazards to human health; and (iv) increased control over coastal activities to stop and reverse the process of alteration of the coastal zone. A number of other actions can be noted, such as the 1993-1994 ban on the dumping of radioactive waste, sewage sludge and industrial waste and on incineration of toxic wastes at sea, as agreed in the 1972 Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Convention);

(c) In relation to programme areas C and D, the legal framework for sustainable use and conservation of living aquatic resources in the oceans has been substantially improved since UNCED. First of all, the entry into force of the United Nations Convention on the Law of the Sea establishes the rights and duties of States with respect to marine environmental protection and conservation and management of resources. It also provides the basis for dispute resolution and the conclusion of further international agreements, inter alia, on high seas fisheries and those in exclusive economic zones (EEZs). Second, the legally binding Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (the Compliance Agreement) was approved by the FAO Conference in November 1993 and has so far been signed by seven States. Third, the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (A/50/550, annex I), which usefully complements the 1982 Convention, was adopted in August 1995 in New York and opened for signature on 4 December 1995. Fourth, the Code of

Conduct for Responsible Fisheries, which, together with the guidelines that support it, provides the guidance necessary for management and conservation of fishery resources as well as associated or dependent species and their environment, was developed by the members of FAO and approved by the FAO Conference in October 1995. The establishment of the Southern Ocean Whale Sanctuary by the International Whaling Commission (IWC) in 1994 also deserves special mention;

(d) In relation to programme area E, agreement has been reached on a development approach, strategy and time-frame for the Global Ocean Observing System (GOOS), involving many national institutions and the effective cooperation of a number of United Nations organizations (UNESCO-IOC, WMO, UNEP, FAO) and other international organizations. Several regional GOOS programmes have been initiated and there has been an increase in efforts to collect and share some critical types of data. In addition, significant progress has been made in numerous scientific domains critical to the understanding of the oceans: (i) the ability to forecast changing environmental, ocean-related conditions (flooding, cyclones, tsunamis), and the capacity to apply such forecasts through warning and protective measures has been considerably improved; (ii) the assessment of the role of oceans in the regulation of greenhouse gas concentrations, especially CO_2, has been updated; (iii) the number of case studies on the vulnerability of low-lying coastal areas and small islands to the potential impacts of climate change and sealevel rise have been completed; (iv) the impact of changing ultraviolet radiation on primary productivity of the marine environment has been assessed; and (v) the first field phase of the International Mussel Watch programme has been completed and several later phases have been initiated;

(e) In relation to programme area F, the issue of international cooperation and coordination for sustainable use of the oceans has been actively addressed in many international and regional initiatives, some of which have been reported above. The creation of the ACC Subcommittee on Oceans and Coastal Areas as a subsidiary body of the Inter-Agency Committee on Sustainable Development has facilitated and improved cooperation among bodies of the United Nations system and, apart from joint integrated reporting on progress achieved in the implementation of Agenda 21, has the potential to become a forum for joint programming. As a first step, a cooperative programme framework for integrated coastal area management is being developed. The Intergovernmental Conference to Adopt a Programme of Action for the Protection of the Marine Environment from Land-based Activities (Washington, D.C., 1995) recommended giving the United Nations Environment Programme a prominent role as the secretariat for institutional follow-up, a clearing-house mechanism and an intergovernmental forum for protection of the seas from land-based sources of pollution. GESAMP, the IMO/FAO/UNESCO-IOC/WMO/WHO/IAEA/UN/UNEP Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection, originally founded to advise solely on marine pollution issues, has broadened its terms of reference so that it can fully respond to the needs of its sponsoring agencies for scientific advice on all aspects of marine environmental protection and management, including ICAM. Its relevance was confirmed by the 1995 London Workshop on Environmental Science, Comprehensiveness and Consistency in Global Decisions on Ocean Issues. The Aquatic Sciences and Fisheries Information System (ASFIS), co-sponsored by the United Nations (Division for Ocean Affairs

and the Law of the Sea), UNESCO-IOC, FAO and UNEP, is responsible for the production of the Aquatic Sciences and Fisheries database (ASFA), the largest and most widely used database on fisheries and aquatic science. It is published in print as well as on CD-ROM. Also, the Conference of the Parties to the Convention on Biological Diversity, at its second session (Jakarta, November 1995), agreed on new initiatives for the conservation of marine and coastal biological diversity. At the regional level, the five United Nations regional commissions, the FAO regional fishery bodies, the UNEP regional seas coordination units and the regional groups of IOC and other organizations address sectoral and cross-sectoral issues related to oceans and marine resources. The UNEP Regional Seas Programme in particular is an important basis for action and cooperation among various institutions, although funding for this activity has been problematic;

(f) In relation to programme area G, the reports of the Secretary-General to the General Assembly at its forty-ninth and fiftieth sessions included detailed information on action taken by the United Nations system to implement the Programme of Action for the Sustainable Development of Small Island Developing States, adopted in Barbados in 1994. The concerns of these States, as related to oceans and coastal areas, are reflected in the main policy recommendations and required actions listed in sections III and IV of this report. These sections are generally relevant and even more critical for small island developing States than for States with larger continental masses.

10. In relation to all programme areas, non-governmental organizations (NGOs) have operated as partners in promoting the concepts of sustainable development and responsible fisheries and defending the views of the public or of minority groups as appropriate. Their actions have been complementary to the actions undertaken by the United Nations system. They have undertaken to raise awareness of the major issues affecting the marine environment and fisheries today, such as protection of marine mammals and endangered species; conservation of resources and the environment; training and education; by-catch and discards in fisheries; a precautionary approach to development and management; overcapitalization and governmental subsidies; consistency and compatibility between management schemes for shared resources; monitoring, control and surveillance; marine environmental protection; biodiversity; the rights and interests of small-scale entrepreneurs; international trade; and transparency and participation of people in management and resource allocation.

11. A number of non-United Nations activities have contributed to the implementation of chapter 17 of Agenda 21, e.g. the recent International Coral Reef Initiative and the 1995 London Workshop on Environmental Science, Comprehensiveness and Consistency in Global Decisions on Ocean Issues.

12. In the critical cross-sectoral area of financing, it should be noted that the Global Environment Facility (GEF), which was originally established as a pilot programme in 1991, was restructured in March 1994 into a permanent funding mechanism to provide grant and concessional funds to developing countries and countries with economies in transition. Over US$ 2 billion will be committed by participating Governments over the 1995-1998 period. While about 14 per cent of its current total resources are devoted to international water projects, this component has seen a sharp fall from US$ 127 million in the pilot phase

(1991-1994) to US$ 4 million in the post-pilot phase (1995-1998) projects. About 44 per cent of GEF resources, accounting for approximately US$ 400 million, are spent on biodiversity projects. Both components in part support the objectives of chapter 17. In addition, UNDP has developed a portfolio of over US$ 70 million for ocean and coastal management. Finally, the World Bank developed a portfolio of more than US$ 100 million in coastal management between 1989 and 1994.

C. Areas for further progress

13. Areas where progress is not as satisfactory include, inter alia: (a) the continuing decline in the abundance of many fishery resources and in the economic health of fisheries in both the developed and developing world; (b) the gap between total financial resource needs estimated at UNCED and those being mobilized; (c) the insufficient development, in many countries, of the national capacity to implement sustainable development strategies; (d) the insufficient level of implementation by Governments of existing rules, regulations, international standards and conventions as reflected in the insufficient adaptation and harmonization of national legislation and procedures and in the inefficiency of enforcement; (e) the different implementation rates between developed and developing countries; and (f) the insufficient gender perspective in all policies and programmes, in line with the Beijing Declaration and Platform for Action. 6/ These and other issues will be addressed in sections III and IV of this report.

II. LINKAGES WITH OTHER MAIN PROGRAMME AREAS OF AGENDA 21

14. Given the nature of the ocean and coastal regions and their impact on the whole of the environment, most of the issues raised in Agenda 21 can be linked in one way or another to chapter 17. Those of most obvious relevance are:

(a) Chapter 2. International cooperation to accelerate sustainable development in developing countries and related domestic policies, particularly on issues related to international trade and the environment;

(b) Chapter 3. Combating poverty, enabling coastal communities and, in particular, poor small-scale fishermen to achieve acceptable and sustainable livelihoods;

(c) Chapter 4. Changing production and consumption patterns, in particular in relation to improving fisheries management and promoting the use of fish for food (including the improved use of by-catch), but also in relation to the more general use of the coastal areas;

(d) Chapter 6. Protecting and promoting human health by reducing risks from polluted coastal waters;

(e) Chapter 7. Promoting sustainable human settlement development, in particular the integrated provision of environmental infrastructure to reduce land-based causes of coastal and ocean pollution;

(f) Chapter 9, Protection of the atmosphere, in regard to: (i) absorption of greenhouse gases; (ii) climate change and its potentially drastic effects on marine living resources; (iii) energy optimization programmes and reduction of dangerous substances in exhaust gas emissions; and (iv) reduction in the use of chlorofluorocarbons (CFCs) in at-sea and coastal ocean industries;

(g) Chapter 10, Integrated approach to the planning and management of land resources, including scientific and technological means;

(h) Chapter 15, Conservation of biological diversity because the living marine resources are an important subset of the world's biodiversity and are affected by fishing activities, aquaculture development and environmental pressures resulting from tourism and other coastal and inland developments. Fishing pressure may influence species and stock composition, as well as the population structure and life history characteristics of target species. The expansion and augmentation of fisheries through such practices as the introduction and transfer of aquatic organisms and hatchery enhancement programmes poses special threats to the maintenance of the naturally well-adapted complex of resident fish. In regard to farmed and domesticated fishery resources, there is a need to develop means to further control, conserve and manage their genetic resources for sustainable food production;

(i) Chapter 18, Protection of the quality and supply of freshwater resources because freshwater inputs through rivers into the ocean and their seasonal patterns are a determining factor of the quality and productivity of related coastal areas (estuaries, mangroves, nurseries) and maintenance of critical habitats (e.g. sea-grass beds, coral reefs). They provide essential signals for ocean species reproduction. In addition, pollution of freshwater by industry, agriculture and mining or as a consequence of urban development has strongly negative effects on the potential for tourism or aquaculture development in coastal areas.

15. Chapter 17, in particular programme areas A and E on integrated coastal area management and on critical uncertainties, respectively, are also of great relevance to small island developing States, for which the ocean represents a significant opportunity for development, a formidable challenge and a persistent threat from the perspective of global climate change and sealevel rise.

III. MAIN POLICY RECOMMENDATIONS

16. The steps to be taken that will have the necessary impact within the required time-frame are often politically difficult, potentially unpopular and require resources not always available. Nevertheless, as stated as an underlying theme of UNCED, the responsibilities that are avoided today will fall upon future generations in an order of magnitude that even the most forward looking individuals may not be able to forecast. In many instances, today's lack of responsibility will have far-reaching effects even on present generations.

17. Having considered the significant achievements of Member States, the need for even more significant efforts in the immediate future and the constraints to proper conservation, rational use and development of ocean and coastal area resources, it is suggested that the Commission on Sustainable Development:

(a) Calling the attention of the international community to the role of oceans and coastal areas as a major governing force of the planetary ecosystem, as well as a determining factor of human life, recommend that greater priority be accorded at national, regional and international levels to the action set out in chapter 17 of Agenda 21;

(b) Recognizing that the intersectoral nature of ocean and coastal areas requires them to be dealt with in a coherent manner, recommend that Governments adjust, as necessary, their administrative and policy structures in support of integrated planning and management, addressing cross-sectoral issues and promoting transparency and participation, including more effective participation of non-governmental organizations;

(c) Stressing the importance of the agreed international legislative and guiding frameworks for harmonious and sustainable development of the oceans, urge Governments to (i) ratify, as soon as possible, the United Nations Convention on the Law of the Sea; (ii) sign and ratify the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks and, in the meantime, apply the Agreement provisionally; (iii) apply the Code of Conduct for Responsible Fisheries adopted by the FAO Conference in October 1995; (iv) accede to the FAO Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas; (v) ratify the 1992 Convention on Biological Diversity and apply the Jakarta Mandate on Coastal and Marine Biodiversity, adopted at the second session of the Conference of the Parties to the Convention on Biological Diversity in November 1995; and (vi) demonstrate greater commitment to implementing these instruments;

(d) Recognizing further the progress made during the post-UNCED process in developing international and regional standards and action plans relevant to the protection and management of coastal and marine environments and to the sustainable use and conservation of its resources, recommend that Governments: (i) continue to use existing mechanisms and forums to foster further progress; (ii) actively participate in regional action plans, programmes and other cooperative arrangements; and (iii) take advantage of international collaboration, particularly in the area of financing;

(e) Conscious of the importance of United Nations organizations and programmes in the process of implementation and in the spirit of the outcome of the Intergovernmental Conference to Adopt a Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (Washington, D.C., 1995), recommend the further improvement and strengthening of the ongoing cooperation and coordination among the organizations and bodies of the United Nations system, in particular with the aim of:

(i) Promoting the implementation of a system-wide initiative on oceans using existing coordination mechanisms and the lead-agency concept widely accepted during the UNCED process;

(ii) Encouraging the development of system-wide, cooperative programme frameworks for activities requiring interdisciplinary and cross-sectoral planning and/or implementation (with priority to the development of such a programme framework for integrated coastal area management) and for education and training programmes in support of capacity-building;

(iii) Pursuing a system-wide approach to mobilizing funding and other resources for common issues, pooling resources where appropriate, particularly at the regional level.

IV. ACTION REQUIRED

18. It is suggested that the Commission on Sustainable Development agree on and call the attention of Governments, the United Nations system and major organizations and groups to the following actions to be taken at the national, regional and international levels to pursue further the implementation of chapter 17 of Agenda 21 towards the sustainable development of oceans and coastal areas.

Programme area A. Integrated coastal area management

19. In connection with programme area A:

(a) Governments are encouraged to develop plans for integrated coastal area management and, by extension, for management of EEZs, within national development plans, and to that end, among other means, to promote and facilitate human resources development through appropriate education and training, drawing upon the experience of such programmes as the TRAIN-SEA-COAST Programme of the United Nations/UNDP;

(b) Governments are asked to develop regional, national and/or local coral reef initiatives, using an ecosystem-based, integrated approach that encourages participation and includes programmes for community-based management or co-management of reef resources;

(c) States are asked to consider the development of appropriate administrative and legislative arrangements that would assign rights and duties (responsibilities) to coastal dwellers and users in order to regulate activities undertaken in the coastal zone, thus promoting the sustainable development of those areas;

(d) The respective governing bodies of the United Nations system should maximize the use of recently developed databases covering such areas as ICAM programmes, projects, courses, scientific data and information in order to improve coastal area planning and management in their respective areas;

(e) External support agencies are asked to encourage increased cooperation and coordination between agencies dealing with water resource issues and development organizations, arrangements or mechanisms, drawing on the successful recent experience of the Black Sea and the Red Sea programmes and using other available mechanisms such as the UNDP-World Bank local donor groups.

Programme area B. Marine pollution

20. In connection with programme area B:

(a) Governments should promote the establishment of self-sustaining financial mechanisms in support of, inter alia: (i) training of personnel; (ii) navigational safety and antipollution measures in international straits; (iii) waste reception facilities in ports; and (iv) salvage and emergency response facilities and capacity-building in hydrographic surveying and nautical charting. No officially sanctioned multilateral schemes along these lines have been adopted so far, although they have been under consideration in IMO and elsewhere for some time. Where appropriate, existing cooperation arrangements should be used (e.g. the UNCTAD/IMO/ILO Working Group on Coordination of Activities on Ports);

(b) Governments should address the need to develop, at the global level, a regulatory framework for offshore oil and gas extraction activities, using IMO as the most appropriate lead organization to undertake this task;

(c) Member States are urged to move towards early ratification of the newly adopted convention pertaining to standards of training, certification and watchkeeping for personnel on fishing vessels and amendments revising the 1978 International Convention on Standards of Training, Certification and Watchkeeping for Seafarers;

(d) Member States are advised that priority should be accorded to developing and implementing adequate measures to protect the marine environment from land-based sources and activities through: (i) effective participation in and implementation of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities; and (ii) strengthening existing arrangements and infrastructure within the United Nations system for quality control of marine pollution data and the relevant training and capacity-building at the national and regional levels - for example, the recently developed trilateral cooperation arrangement between UNEP, IAEA and IOC.

Programme areas C and D. Living marine resources

21. In connection with programme areas C and D:

(a) Governments and FAO are urged to establish and/or strengthen, as appropriate, subregional or regional fishery management organizations or arrangements to adopt and carry out conservation and management measures, particularly for transboundary and shared fishery resources;

(b) Governments should undertake to develop or strengthen national fishery management authorities, with the active participation of the fishing communities, in the context of integrated coastal fisheries management (ICFM);

(c) Governments are urged to reduce subsidies to the fishing industry and abolish incentives leading to over-fishing;

(d) Funding organizations, investment banks and donors should provide developing countries with the financial assistance required to support their efforts to make sustainable use of their resources (e.g. to start the process of effort-reduction, which should lead to improved biological and economic viability of fisheries);

(e) Governments are encouraged to draw from the potential offered by the enhancement of aquatic living resources in general, and by coastal aquaculture and ranching in particular, adopting a precautionary approach to development and sustainable practices;

(f) Governments are urged to respect agreed international management measures such as the Southern Ocean Whale Sanctuary established by IWC and the General Assembly resolutions on large-scale pelagic drift-net fishing.

Programme area E. Critical uncertainties

22. In connection with programme area E:

(a) Member States are encouraged to continue to strengthen the relevant national institutions and their infrastructures and to include, in particular, trained interdisciplinary expertise, promoting the development of the interface between research and the decision-making process and introducing ocean environmental subjects in school curricula at all levels;

(b) States are reminded of the need to ensure, through the provision of sufficient resources to national institutions, that ongoing and planned cooperative research on the oceans can be completed for the benefit of all;

(c) Member States are urged to make commitments to and to support, through their national institutions, the continued gradual establishment of the Global Ocean Observing System (GOOS), building on the existing systems so as to form a globally coordinated strategy to secure sufficient information for adequate management, forecasting and periodic scientific assessments of the state of the marine environment; the information produced should be comparable (i.e. quality controlled);

(d) Member States, United Nations organizations, and bilateral assistance and financing institutions should cooperate in strengthening the capability of national institutions to manage and use data and products derived from the systematic monitoring, especially through GOOS, of marine environmental changes and should commit themselves to high-level intergovernmental cooperation in the exchange of data and information;

(e) Member States are urged to take early action to strengthen their data and information management capabilities, including telecommunication aspects, so as to better contribute to and benefit from global observation and data exchange systems;

(f) Member States and their institutions are encouraged to contribute to global efforts to improve the assessment, monitoring and control of the impact of marine and coastal pollution on human health.

Programme area F: International cooperation and coordination

Regional level

23. In connection with programme area F, recalling that regional cooperation has been endorsed by UNCED as a priority vehicle for the implementation of Agenda 21, especially in regard to intersectoral domains, of which the oceans and coastal areas are prime examples:

(a) Regional bodies and organizations with mandates in areas relevant to the oceans and coastal areas are urged to reflect the provisions and priorities of chapter 17 of Agenda 21 in their respective programmes and work plans and to strengthen cooperation among their organizations, thus contributing to harmonizing their work on ocean and coastal-related matters;

(b) Donors are encouraged to give priority to proposals that facilitate regional cooperation, inter alia, through the United Nations regional commissions or through regional banks, especially those that support technical and institutional collaboration, with associated assistance to human and infrastructure development;

(c) The ACC Subcommittee on Oceans and Coastal Areas is invited to pay specific attention to monitoring and advising on the implementation of Agenda 21 (chap. 17) at the regional level. It should, inter alia: (i) identify gaps and opportunities for joint programmes as an impetus for regional cooperation, using chapter 17 as a joint framework; (ii) continue to use the lead-agency and associated-agency concepts, which have led to a rational division of responsibilities and the use of the competencies available in the United Nations system. In this connection, more active participation of the regional commissions in the work of the Subcommittee is envisaged. Moreover, the work of the Subcommittee could also benefit from more interaction with non-governmental organizations.

Global level

24. In connection with programme area F, the Commission may wish to:

(a) Urge Governments that have not yet established appropriate national policy mechanisms on oceans and coastal areas to do so in order that positions taken at the United Nations and its specialized agencies are harmonized;

(b) Suggest appropriate use by the Global Environment Facility (especially for its international waters and biodiversity components) of the competence

available in the specialized agencies of the United Nations system to support priority-setting, formulation of proposals and project execution, for fuller implementation of chapter 17;

(c) Encourage an intensified use of existing mechanisms for inter-agency cooperation that are viewed as being particularly effective - coordination mechanisms such as the Intersecretariat Committee on Scientific Programmes Relating to Oceanography (ICSPRO) and the ACC Subcommittee on Oceans and Coastal Areas; joint advisory groups such as GESAMP (the IMO/FAO/UNESCO-IOC/WMO/WHO/IAEA/UN/UNEP Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection); joint programmes such as GIPME (Global Investigation of Pollution in the Marine Environment); and agreements through memorandums of understanding as a framework for issue-oriented action at all levels;

(d) Encourage the private sector and Governments to explore jointly opportunities for mutually beneficial partnerships with regional organizations and United Nations organizations in connection with the implementation of chapter 17 of Agenda 21;

(e) Encourage Governments, in closer cooperation with non-governmental organizations and major groups, to participate in activities to increase awareness of the impact of the oceans and coastal areas on the life of our planet, including those to be organized within the context of the International Year of the Ocean in 1998.

Financial implications of action required

25. Bearing in mind that (a) the implementation of chapter 17 of Agenda 21 will require a substantial increase in funding for the oceans and coastal regions, about 90 per cent of which will have to come from national sources (public and private); (b) the costs of not taking appropriate action, as reflected, for example, in the cost of over-fishing (over US$ 50,000 million per year) or in the recent outbreaks of diseases in Asian shrimp culture (hundreds of millions of dollars), have become unsustainable; and (c) the catalytic effect of initiatives undertaken through the United Nations system, which has already shifted resources towards the implementation of Agenda 21, with effective results:

(a) Governments of both developed and developing countries are urged to renew and increase their commitment to chapter 17 of Agenda 21 and to commit local resources for its implementation (particularly using user charges, taxes, etc.) in order to cover the immediate costs of the conservation and management of natural resources and foster development sustainability;

(b) Donor Governments should consider increasing their financial support to the initiatives undertaken by developing countries and countries with economies in transition, through bilateral and multilateral channels, for national, regional (including support to regional organizations) and global programmes. In particular, they are urged to enhance their contribution to the Global Environment Facility (GEF), which has become a critical funding source,

especially in regard to the ocean-related activities under the international waters and biodiversity components, as reflected in the 1995 operational strategy for GEF.

Notes

1/ United Nations Conference on Environment and Development, Rio de Janeiro, 3-14 June 1992, vol. I, Resolutions Adopted by the Conference (United Nations publication, Sales No. E.93.I.8 and corrigendum), resolution 1, annex II.

2/ Ibid., para. 17.1.

3/ Official Records of the Third United Nations Conference on the Law of the Sea, vol. XVII (United Nations publication, Sales No. E.84.V.3), document A/CONF.62/122.

4/ See the report of the Secretary-General on the law of the sea (A/50/713 of 1 November 1995) and the January 1996 update (internal).

5/ A more extensive listing of achievements is given in the addendum to this report. It should be noted that detailed information on achievements at the national level has not yet become available through the process of national reporting and could not be included in this report or the addendum.

6/ Report of the Fourth World Conference on Women, Beijing, 4-15 September 1995 (A/CONF.177/20), chap. I, resolution 1, annexes I and II.

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Financial resources and mechanisms for sustainable development: overview of current issues and developments

Report of the Secretary-General

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INTRODUCTION

1. The present report describes progress made in the implementation of chapter 33, "Financial resources and mechanisms", of Agenda 21, 1/ which was adopted by the United Nations Conference on Environment and Development (UNCED) in June 1992; the report also provides a number of recommendations for action. The report was prepared by the Department of Policy Coordination and Sustainable Development of the United Nations Secretariat, as task manager for chapter 33 of Agenda 21, in accordance with arrangements made by the Inter-Agency Committee on Sustainable Development (IACSD) at its sixth session. The report is the result of consultations and information exchange among designated focal points in United Nations agencies, government officials, and a number of other institutions and individuals.

2. The analysis of issues and the presentation of policy options contained in the present report are supported by the more detailed discussion contained in the addendum (E/CN.17/1996/4/Add.1).

3. The report and the addendum benefited greatly from preparations for an expert meeting in Manila (see para. 5 below) and inputs from various members of IACSD. Particularly valuable inputs were papers received from the International Monetary Fund (IMF) on economic instruments and the World Bank on the contribution of the private sector to the financing of sustainable development. 2/ The Organisation for Economic Cooperation and Development (OECD) made two valuable contributions in the form of a paper on the use of economic instruments (the most recent report of its Development Assistance Committee (DAC)), and the preparation of statistics on financial flows. Other extremely useful contributions were made through papers prepared by the Asian Development Bank on economic instruments, the Office of Development Studies of the United Nations Development Programme (UNDP) on innovative financial mechanisms, and the Economic and Social Commission for Western Asia on economic instruments. In addition, the Earth Council made available the preliminary results of its research on subsidies.

4. Various Governments have provided generous financial and logistical support for convening expert meetings on the financing of Agenda 21, as a contribution to the work of the Commission on Sustainable Development.

5. To support the discussion on finance, the Governments of Japan and the Philippines and the Asian Development Bank provided financial and logistical support for the Third Expert Group Meeting on Financial Issues of Agenda 21 (Manila, 6-8 February 1996).

6. The Manila Meeting provided various substantive inputs for the present report in the form of papers prepared by agencies and individual experts; however, the timing of the Meeting did not allow the inclusion of its outcome in the present report.

I. MOBILIZING EXTERNAL FINANCIAL RESOURCES FOR SUSTAINABLE DEVELOPMENT

7. Total net resource flows from OECD countries and international agencies to developing countries reached a record level of $185 billion in 1994. As has been the case each year since 1991, the increase was due entirely to private investment and lending. Official development assistance (ODA), which had fallen sharply in 1993, recovered by $3 billion in 1994 to reach a total of $59 billion. However, as a percentage of gross national product (GNP), the average ODA contributed by DAC members fell to 0.30 per cent, the lowest level since 1973. Moreover, debt forgiveness and emergency aid each imposed record demands of about 10 per cent of total aid flows.

8. A significant number of developing countries have now advanced towards sustained economic growth and are attracting private capital from abroad. Private flows account for some 60 per cent, compared with 35 per cent in 1986. Official development finance (ODF) now accounts for about 40 per cent of total flows, down from nearly 70 per cent in the mid-1980s.

9. This changed situation calls for developing a new approach to the financing of sustainable development in which adjusting aid strategies to current and future requirements would be a crucial element. The issues that would be discussed in such a new approach would be wide-ranging: they would include domestic resource mobilization, aid effectiveness, policies for attracting higher levels of foreign-direct investment (FDI), remaining debt challenges and measures to secure the sustainability of private flows.

II. MOBILIZING NATIONAL FINANCIAL RESOURCES FOR SUSTAINABLE DEVELOPMENT

10. As in other investment decisions of the private sector, risk perception plays a major role in environmental investments; the policy credibility risk is of particular importance. Private firms cannot be sure that Governments will enforce regulations and not arbitrarily change them; in addition they often lack access to information about new technologies, and do not necessarily consider cleaner production by means of a more efficient use of raw materials as a sufficient incentive to invest.

11. Therefore, implementing enabling policies needs to be put high on the agenda in both developed and developing countries: negative incentives in the form of regulations, taxes, charges, tradeable permits and penalties for non-compliance are essential. In addition, a broad range of positive incentives can boost private-sector finance, in particular financial incentives, incentives for creating or changing markets, and incentives for reducing market risk. In addition, institution-building and campaigns for changing consumption and production patterns can play a major role.

12. There is scope for international organizations to stimulate private-sector investment in sustainable development, in particular through projects for creating or changing markets, reducing market risks or financing global benefits, such as the phasing-out of ozone-depleting substances. Promising

initiatives are currently under way in the areas of forests, energy, new and renewable sources of energy, biodiversity and greenhouse gas mitigation.

13. As to evaluating the performance of economic instruments, a number of developed countries have set up study groups to look at ways of moving towards a more environmentally friendly tax system, and it is hoped that other countries will follow their example in order to speed up the process of achieving concrete reform.

14. The ongoing evaluation of the actual performance of economic instruments will play an important role in efforts to widen the use of such instruments: important lessons can be drawn from the evaluation of pollution taxes, natural resources taxation and emission-trading schemes.

15. Fiscal regimes applied to natural resources have a long way to go in discouraging the excessive extraction and harvesting of natural resources and/or mobilizing substantial additional budgetary resources for sustainable development. This has become evident, for example, from the evaluation of economic instruments applied in the areas of forests and mineral resources.

16. The performance of emission-trading programmes in the United States of America has been impressive in reducing the cost to businesses of achieving the air-quality objectives established by regulatory bodies.

17. In view of rising public-sector deficits and debt and the need to achieve a more efficient allocation of scarce economic resources (which will also benefit the environment), Governments are increasingly interested in reviewing existing subsidy schemes. This is reflected, for example, in a request by the environment ministers of the G-7 countries at a meeting in Hamilton in May 1995: the ministers requested that OECD review its policy of reducing subsidies in order to mitigate the environmental impact of certain producing sectors in OECD countries.

18. The fact is that subsidies may generate negative as well as positive economic and environmental effects, and the distributive consequences of removing subsidies also need to be considered: their net effect on economic and environmental welfare is thus an empirical question. Similarly, the net effects of reforming existing subsidy regimes will depend on the context in which such subsidies were established and the specific ways in which they are reduced or abolished.

III. FEASIBILITY OF INNOVATIVE MECHANISMS FOR FINANCING THE PROTECTION OF THE GLOBAL ENVIRONMENT

19. While such mechanisms as international environmental agreements and the Global Environment Facility (GEF) can make a significant contribution to mitigating global environmental problems, recent discussions in the Commission on Sustainable Development and other international forums have discussed establishing additional mechanisms in the form of global taxes and user charges for financing global environmental efforts. It is argued that such innovative mechanisms should be pursued alongside existing efforts to increase ODA as a

percentage of GNP, replenish GEF in a substantial way and encourage private-sector investment in sustainable development.

20. Advocates of such taxes and charges tend to assume that they would easily become widely accepted by national Governments and have thus chosen to focus on technical details. Unfortunately, this may not be a realistic approach because global taxes and charges, even if technically feasible, may not be readily accepted. There is currently little apparent willingness on the part of many Governments to cede sovereign taxation power to any international body. In addition, global taxes would probably result in enormous wealth transfers, depending on the design of the individual taxes; this factor alone would make the negotiation of global taxes extremely difficult.

21. Since the Commission discussed an internationally agreed tax on air transport (IATT) at its third session, the work undertaken has yielded few new insights into the major issues involved. It is becoming increasingly clear that if IATT were tied to the total ticket sales of airlines, it could not be expected to effectively internalize the cost of pollution because total airline ticket sales are not closely linked to emissions.

22. Air distance travelled, aircraft fuel consumption and average age of airplanes may be more direct proxies for the level of emissions. Ideally, such a tax should be designed to reduce the average age of airline fleets and encourage the adoption of cleaner technologies.

23. Based on the total air distance travelled (passengers and freight) of 270 billion kilometres in 1994 and a per unit tax of US$ 0.004 per kilometre, about US$ 1 billion per annum could be raised by IATT.

24. The so-called Tobin tax is an excise tax on foreign-exchange transactions that has attracted much attention lately, and is actually discussed more for its calming effect on speculation in financial markets and its revenue potential than for its relation to the global environment, which is understandable in view of the huge size of that revenue potential: with the daily turnover in foreign-exchange conversion estimated at about US$ 1.2 trillion, a tax of 0.01 per cent on the value of each transaction would yield some US$ 30 billion per year.

25. Five criticisms of the economic and environmental justification of the Tobin tax have been made. First, like all taxes it would introduce an efficiency cost. Second, the distributional impact of such a tax would be complex and could not be predicted with certainty. Third, the focus on reducing exchange-rate volatility is tantamount to treating the symptoms of foreign-exchange markets without attending to the political and economic main causes of foreign-exchange volatility, in particular monetary and fiscal policies. Fourth, the tax is not directly linked to the causes of environmental degradation, and its role in addressing environmental problems would therefore be unclear. Finally, although the technical questions of revenue raising and distribution that such a tax would involve have been studied by academic researchers to some extent, national Governments have not yet been sufficiently involved.

IV. FINANCING THE TRANSFER OF ENVIRONMENTALLY SOUND TECHNOLOGIES

26. Financing the transfer of environmentally sound technologies (ESTs) has remained high on the agenda of the Commission, with particular emphasis on improving the conditions for financing ESTs from external financial resources, facilitating access to traditional national financing mechanisms, and promoting innovative mechanisms for the financing of ESTs.

27. To sharpen the focus of the discussion, it will be important to clearly identify to what extent difficulties in financing the transfer of ESTs differ from difficulties encountered in financing other production inputs: the limited access of environmental firms to venture capital and equity financing is a good illustration of such significant differences. The lack of interest of venture capitalists in funding environmental firms may be attributable to the difficulty of assessing the future regulatory environment and of forecasting the growth of the highly segmented ESTs market, as well as to the disappointing performance of the stock prices of environmental firms.

V. MATRIX OF POLICY OPTIONS AND FINANCIAL INSTRUMENTS: DEVELOPING ITS FORMAT AND CONTENT

28. Given the broad scope of mechanisms and instruments that can be applied to providing funding for the implementation of Agenda 21, a matrix could facilitate the work of the Commission. A rudimentary matrix was submitted to the Commission at its third session (see E/CN.17/1995/8) and was considered to be useful; members of the Commission felt, however, that there was a need for further developing the format and content of the matrix. As a result, an expanded, new matrix has been prepared that presents an indicative set of policy options and financial instruments, organized by sector and category of instrument.

VI. RECOMMENDATIONS

29. Based on the previous sections of the present report, the Commission may wish to consider the recommendations and proposals for action described below.

30. In developing a new vision for financing sustainable development, it will be necessary to arrive at a differentiation between countries that goes beyond simple regional categories or broad income categories in order to capture the reality of a changing world.

31. In view of the strong trend away from State-led development and towards market-based economic strategies, the development of a new approach to the financing of sustainable development will have to become part of integrated policy reform efforts.

32. The issue of the impact on sustainable development of subsidies must be further pursued. In view of the insufficient number, scope and conceptual quality of the subsidy evaluations undertaken to date, it will be important to

support the new work programme of OECD in this area and to encourage other institutions as well, including non-governmental organizations, to strengthen their activities in this important area. Such efforts should contribute to (a) developing a clear definition of subsidies, (b) designing suitable indicators for measuring the magnitude of subsidies and (c) improving the impact assessment of subsidies. In addition, research should assist in formulating recommendations on the desirability of an international effort to review subsidies.

33. The Commission may wish to advance the policy dialogue on economic and fiscal instruments through an active exchange of information and review of experiments with a view to removing obstacles to their effective use.

34. At the first session of the Conference of the Parties to the United Nations Framework Convention on Climate Change, which was held in Berlin in 1995, it was decided to undertake a pilot phase for activities implemented jointly; the Parties identified a need to gain experience regarding the practical and conceptual implications of such activities.

35. The role of pilot schemes as a key to furthering progress towards the launching of a system of internationally tradeable carbon dioxide permits was discussed by the Commission at the third session. In the meantime, a preliminary development plan for a pilot global warming emissions trading programme has been prepared under the sponsorship of the Earth Council with the goal of implementing such a programme starting in 1999. The plan has received strong interest from numerous industrial corporations, national Governments, environmental groups and international agencies. The Commission may wish to express its support for the pilot programme.

36. It is important to examine a multitude of traditional and innovative financing mechanisms for improving the financing of ESTs. In addition, future policy-oriented analyses will need to take into consideration the widely differing situations in developing countries and the specific problems of the economies in transition, in particular with regard to such problems as underdeveloped venture capital industries and inefficient equity markets.

37. It is suggested that the format of the matrix of policy options and financial instruments for sustainable development be further refined to include estimates of the magnitude of the incentive and financing effects that would result from applying each policy option and instrument to each sector.

Notes

1/ Report of the United Nations Conference on Environment and Development, Rio de Janeiro, 3-14 June 1992, vol. I, Resolutions Adopted by the Conference (United Nations publication, Sales No. E.93.I.8 and corrigendum), resolution 1, annex II.

2/ The Third Annual World Bank Conference on the theme "Effective financing of environmentally sustainable development" (Washington, D.C., 4-6 October 1995) provided additional valuable inputs.

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Financial resources and mechanisms

Addendum

Report of the Secretary-General

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INTRODUCTION

1. The present addendum aims to support the analysis of issues and the presentation of policy options outlined in the report of the Secretary-General on financial resources and mechanisms (E/CN.17/1996/4).

2. The report focuses on the mobilization of external and national resources for the financing of sustainable development. In addition, it discusses innovative international financial mechanisms and mechanisms for the financing of sectors and cross-sectoral issues (technology transfer, atmosphere and oceans). Section V focuses on refining the format and content of a matrix of policy options and financial instruments.

I. MOBILIZING EXTERNAL FINANCIAL RESOURCES FOR SUSTAINABLE DEVELOPMENT

3. This discussion of current developments in resource flows and debt is based on the most recent report of the Development Assistance Committee (DAC) of the Organisation for Economic Cooperation and Development (OECD). 1/ Useful information was also obtained from the report of the Secretary-General on the sources of finance for development at mid-decade and the developing country debt situation as of mid-1995 (see A/50/397 and A/50/379). 2/

A. External conditions and financial flows

1. Recent developments in external conditions

4. In most of the industrial countries, economic expansion has been under way for some time, although the pace of economic expansion slowed somewhat in the first half of 1995. Among the countries where the upswing has been the strongest - the United States of America, Canada, the United Kingdom of Great Britain and Northern Ireland, and Australia - some moderation of growth was appropriate following the rapid absorption of slack during 1994. For Germany, France and several other continental European countries still recovering from the 1992-1993 recession, economic activity is expected to remain relatively strong. The most serious deterioration in the economic situation has occurred in Japan, which is experiencing one of its most serious economic slow-downs in the post-war period.

5. Among most of the developing countries, growth has remained strong and should average about 6 per cent in both 1995 and 1996. Conditions for a pick-up in growth are also improving in many of the poorest countries. In Africa, however, many countries are still suffering from declining or stagnating levels of per capita income: significantly higher growth rates will be required to improve living standards.

6. Economic growth varies considerably across the countries in transition. For example, in the Russian Federation, Belarus, Ukraine and most Transcaucasian and central Asian countries, growth continued to decline in 1994 and the first

half of 1995. In contrast, such countries as Poland, the Czech Republic, Slovakia, Hungary, Slovenia, Albania, the Baltic countries and Mongolia are enjoying robust economic growth.

7. The substantial reversal in 1995 of earlier rises in long-term interest rates is expected to provide significant support to economic growth in the period ahead. However, barring stronger efforts to reduce fiscal deficits than currently envisaged, only a few countries appear to have significant scope for further lowering interest rates.

8. The expansion of the volume of world trade in goods and services is expected to record a pace of 8 per cent in 1995 and 6 1/2 per cent in 1996. Out-sourcing from industrial countries with strong exchange rates, increased trade among the developing countries and the continued recovery of trade in economies in transition are the main factors that will contribute to rapid trade growth.

9. Prices of internationally traded goods (measured in special drawing rights (SDRs)) are expected to change only marginally over the short term, as productivity increases, trade is further liberalized and competitive forces (including in commodity markets) contribute to keep global inflationary pressures at bay.

2. Current trends in resource flows and debt

10. Table 1 provides an overview of recent trends and patterns in the financing of sustainable development, based on the DAC statistical reporting system.

11. Four major trends are noteworthy. First, total net resource flows to developing countries rose again in 1994, reaching $185 billion. Second, a further increase in foreign-direct investment and a resurgence of international bank lending were the predominant forces. Third, bond lending levelled off a little below the unusually high levels reached in 1993. Fourth, disbursements of official development finance (ODF) fell: concessional disbursements of official development assistance (ODA) rose in both nominal and real terms, but multilateral net lending on non-concessional terms dropped substantially and bilateral net lending on non-concessional terms rose only slightly.

12. After a sharp fall in 1993, total ODA reached $59 billion in 1994, up by $3 billion from the previous year and steady in real terms. For 13 DAC member countries, the real level of aid disbursements increased, while for eight of them disbursements fell (see table 2). Total ODA of DAC members as a percentage of their combined gross national product (GNP) dropped from 0.31 per cent (revised figure) to 0.30 per cent, the lowest level since 1973.

13. As to the allocation of ODA for environmental targets, DAC members have actively worked towards finding adequate policy responses to implementing the Agenda 21 objectives agreed at the United Nations Conference on Environment and Development. It is now clear that significant external funding for environmental projects and programmes has been forthcoming: in 1993 about 5 per cent of new ODA commitments were reported as being specifically for

environmental purposes. However, environment is only one intrinsically linked element of sustainable development, the other components being social and economic. At present, available definitions do not permit a global assessment of the domestic and external resources that have been allocated to sustainable development categories as used in Agenda 21. For some observers, this is a significant factor hampering the implementation of Agenda 21. DAC will continue its collaboration with the Commission on Sustainable Development in further efforts to improve the adequacy of statistical data in this field.

14. Closely related to the issue of financial flows to developing countries is the scale and pattern of developing country debt. Table 3 shows that in 1994, stocks of developing country debt grew by some $144 billion to $1,714 billion, of which about a quarter is short-term debt that rose by about 14 per cent in United States dollar terms ($52 billion). Long-term debt rose by 7 per cent, or nearly $85 billion.

B. Select policy issues

1. Taking a new approach to sustainable development financing and ODA

15. There is a growing recognition that it will be necessary to develop a new approach to the financing of sustainable development in view of the changing balance between private capital flows and ODA, remaining debt problems and domestic development strategies that affect the financing of sustainable development.

16. In developing a new approach, a number of key issues need to be addressed, such as whether rising domestic savings and tax revenues should be at the heart of a sustainable development process, and whether aid dependence should decrease over time. 3/ Furthermore, ways and means of increasing the effectiveness of bilateral and multilateral aid need to be discussed. Considering that the capacity and integrity of the domestic financial sector determines the extent to which economies are able to interface with international capital markets, it will be necessary to review policies that are geared to nurturing the development of the domestic financial infrastructure. Moreover, it will be essential to discuss the relationship between the debt profile of developing countries and their ability to mobilize additional financial resources for sustainable development.

17. In view of the unprecedented requirements for the financing of infrastructure it will also be desirable to develop new financial mechanisms, particularly for meshing together public and private financial resources, within the framework of a new approach to sustainable development financing. In addition, the important issue of the sustainability and stability of large global financial market-intermediated resource flows needs to be addressed with an emphasis on promoting a larger officially provided safety net and intensified surveillance by international organizations.

18. In developing a new vision for the financing of sustainable development, it will also be necessary to arrive at a differentiation between countries that

goes beyond simple regional categories or broad income categories in order to capture the reality of a changing world. Indeed, in view of the strong trend away from State-led development towards market-based economic strategies, the development of a new approach to the financing of sustainable development will become an integrated part of policy reform efforts.

2. Addressing remaining debt challenges

19. Debt problems are far from over for a significant number of countries, most of them severely indebted low income countries (SILICs). With very few exceptions, these are countries whose debt-servicing performance is far below contractual obligations, with no realistic hope at present debt levels of ever achieving normal servicing of debt. By far the largest component of the debt of such countries consists of official or officially supported claims. The Paris Club Naples terms open the way for definitive reductions in the stocks of official bilateral debt. In a significant number of cases, however, a large proportion of the debt stock is multilateral. Definitive Paris Club action on bilateral official debt can contribute to improving the capacity to service multilateral debt, but it is unlikely to resolve by itself the debt problems of countries with high proportions of multilateral debt.

20. Ways will have to be found both to implement the Naples terms on a more comprehensive basis (for example, considerable amounts of bilateral debt are not eligible under the cut-off dates established) and to find additional ways to finance multilateral debt service.

21. The future ability of developing countries to attract private flows and avoid disruptive episodes of private-market financing of development will be strongly influenced by their debt profiles. In a financial climate in which excessive debt-servicing payments are financed by high levels of new aid, it is difficult to see how countries can develop healthy public financing structures and strong financial intermediation systems for private-sector development. Their credit ratings are also bound to remain low, postponing well into the future their prospects for attracting external private-market finance. In this context, the continuing development of a debt strategy, including some consideration of whether there is a case for a new facility to cope with the overhang of multilateral debt, remains especially important.

II. MOBILIZING NATIONAL FINANCIAL RESOURCES FOR SUSTAINABLE DEVELOPMENT

A. Increasing the role of the private sector in the financing of sustainable development

22. As a follow-up to the discussion by the Commission at its third session, section II.A addresses various obstacles to the private-sector financing of sustainable development and to policies that could remove such obstacles, in particular improved access to credit, financial incentives, and innovative mechanisms, such as co-financing arrangements and venture capital funds (see E/CN.17/1995/8).

1. Obstacles to increased private-sector financing

23. In order to increase the role of the private sector in the financing of sustainable development a number of specific hurdles will have to be overcome. For example, risk is a prime consideration in the decisions of private investors. Firms that are contemplating environmental investments face market risks and risks resulting from changes in licensing, taxation, the levying of tariffs, exchange-rate policies and access to foreign exchange. In addition, firms cannot be sure that Governments will enforce regulations and not arbitrarily change them (policy credibility risk).

24. Furthermore, firms often lack access to information about new technologies, and do not necessarily consider cleaner production through a more efficient use of raw materials as a sufficient incentive to invest. In particular, in developing countries the so-called stamp of environmentally friendly production is typically not available, partly because environmental goals have a lower priority than they have in some developed countries, in which the stamp provides marketing advantages.

25. In general, firms in developing countries limit their investment to compliance investments, i.e., investment geared to environment regulation. Even in developed countries, the bulk of investment is compliance investment. Voluntary, non-compliance investment, such as investing in environmental controls over and above required compliance, does not play a major role.

26. Non-compliance investment is undertaken for a variety of reasons. In addition to expanding market share through an improved environmental image for so-called "green consumers", the cost-reduction motive plays a major role. Cost reduction can be achieved, for example, through recycling, the source reduction of waste and the conservation of energy and materials. Non-compliance investment is also undertaken in anticipation of regulations that are not yet in existence or are planned (anticipatory compliance).

2. Implementing enabling policies

27. A sound policy framework that embraces economic, resource and environmental issues sets the incentive structure for the private sector. For instance, environmental policies concerned with preserving habitat or reducing levels of pollution emissions provide negative incentives in the form of regulations, taxes, charges, tradeable permits and penalties for non-compliance. The effectiveness of negative incentives will depend on the administrative capabilities of government institutions and the attitudes of the general public towards environmental issues. In developed countries, negative incentives have worked well and helped to ensure that a substantial share of environmental investment is financed by the private sector.

28. The effectiveness of environmental and resource policy in boosting private-sector finance can be substantially increased by the provision of positive incentives to the private sector. There is a broad range of such incentives, which can be divided into financial incentives, incentives for creating or changing markets and incentives for reducing market risk. In addition, private-

sector finance for sustainable development can be promoted by institution-building and campaigns for changing consumption and production patterns.

29. Tax incentives and ways and means of increasing access to credit for private-sector investment in sustainable development were discussed by the Commission at its third session (see E/CN.17/1995/8), and initiatives for changing consumption and production patterns are also discussed in the report of the Secretary-General on changing consumption and production patterns (E/CN.17/1996/5 and addendum).

30. In addition to discussing how Governments can implement enabling policies for increased private sector financing, it may be useful to also address what international organizations could do in this regard.

3. International organizations and private-sector financing

31. International organizations plan to continue making a significant contribution to promoting private-sector financing in sustainable development in the areas of forests, energy, new and renewable sources of energy, ozone-depleting substances, biodiversity and greenhouse gas mitigation. Projects are designed to create or change markets, reduce market risks or finance global benefits, such as the phasing-out of ozone-depleting substances.

32. One of the most direct ways to lever private-sector finance is to privatize services. For example, until the early 1990s Buenos Aires suffered from a water supply and sanitation system that was badly maintained and overstaffed. With the advice and assistance of the World Bank, a privatization programme was started in 1991, involving a bidding for a concession, whereby a private operator would undertake to operate, maintain and expand the water and sanitation services over a 30-year period, with the assets to remain publicly owned. Part of the finance was provided by the World Bank and the Inter-American Development Bank.

B. Evaluating the performance of economic instruments

33. At its third session, the Commission assessed the role of economic instruments in sustainable development policies discussed how to achieve a better mix between economic instruments and command-and-control measures, and identified and analysed major obstacles to the introduction of economic instruments in different groups of countries. The discussion was supported by a wide range of examples of the use of economic instruments in developed countries, developing countries and economies in transition (see also E/CN.17/ISWG.II/1994, E/CN.17/1995/8 and E/CN.17/1995/13).

34. In order to illustrate some new developments in the use of economic instruments, some examples are provided below (see also E/CN.17/1996/5 and addendum). In view of the interest of the Commission in advancing the policy dialogue on economic instruments, this will be followed by a preliminary evaluation of the functioning major economic instruments that are currently in

practice, in particular pollution taxes, natural resource taxes, emission trading schemes and subsidies.

35. In OECD countries, much of the current interest in applying economic instruments to environmental objectives centres on opportunities for gradually "greening" the tax system. This can occur in several ways, such as by imposing new or modified eco-taxes, reforming the tax regime along environmental lines, or reducing economic subsidies that harm the environment; OECD countries are active in each of these areas.

36. In OECD countries, environmental considerations are playing an increasing role in the design of several taxes. The continuing growth in the use of product charges/taxes aimed at correcting externalities is reflected in recent developments in Belgium, Denmark and the United Kingdom. Furthermore, energy taxation has been reformed in a number of OECD countries; such reforms have included the transport sector, particularly vehicles, sometimes with explicit provisions for the benefit of the environment.

37. Only a few OECD countries, however, are currently considering a restructuring of their existing tax system in order to make it more environmentally friendly while keeping the total fiscal burden constant. But a number of countries (Norway, Sweden and the Netherlands) have established study groups to look at ways of arriving at a more environmentally friendly tax system.

38. Economies in transition and developing countries are continuing to show an interest in the use of various types of economic instruments. For example, a number of countries have introduced pollution taxes. Russia, Hungary, Poland and Estonia all impose taxes on air and water emissions that take into account factors influencing the level of environmental damage, such as the quantity and toxicity of emissions. Several developing countries impose levies on air emission (China, India and Korea) and on water emissions (China, Korea, Malaysia, the Philippines and Thailand).

39. To date, the economies in transition and developing countries have been slow in following the example of OECD countries in introducing indirect environmental taxes (taxes on productive inputs or consumer goods whose use is related to environmental damage). Among the exceptions is Bangladesh, which has introduced taxes on ozone-depleting substances.

40. The major obstacles that generally obstruct environmentally oriented tax reforms were discussed by the Commission at its third session (see E/CN.17/1995/8).

1. Pollution taxes, natural resource taxation and emission trading schemes

41. In view of the continued interest of countries in increasing the use of economic instruments (EIs), there is an equally strong interest in evaluating the practical achievements of such instruments in terms of their environmental effectiveness and economic efficiency. EIs are expected to achieve a level of

environmental protection similar to existing command-and-control instruments at a lower cost (cost effectiveness); induce more innovation in pollution-abatement technologies than traditional command-and-control instruments (thus achieving a higher level of abatement); and generate government revenues that can be used for reducing non-environmental taxes or increasing government spending for sustainable development (in the case of taxes, charges and auctioned permits).

42. Unfortunately, there is far too little evidence available on the practical achievements of economic instruments once they have been implemented (ex post evaluation), so that no definitive answer can be given to the question of whether they really live up to the expectations outlined above. OECD is trying to address this problem, and has launched a project on the evaluation of EIs. In addition, other institutions, such as the International Monetary Fund, and academic researchers have made valuable efforts in evaluating the practical use of EIs.

43. From the work of various institutions and researchers, some interesting policy conclusions can be drawn about pollution taxes, natural resource taxation and pricing, and emission trading schemes, which are discussed below. It is important, however, to note that the evaluation carried out so far has not been systematic and has faced significant conceptual difficulties.

(a) Pollution taxes

44. According to economic theory, taxes that are levied on environmentally polluting emissions to internalize the social costs of pollution (Pigouvian taxes) are the most efficient means of addressing pollution-induced environmental degradation. Taxes that are levied on factors of production or products (indirect environment taxes) are a second-best alternative to pollution taxes and can be as efficient at mitigating pollution-induced environmental degradation under very specific circumstances.

45. Pollution taxes that have been implemented to date have been criticized on several grounds. For example, it is often noted that the rates of such taxes are set too low to efficiently mitigate pollution-induced environmental degradation: they are set so low that the cost of paying the tax is often less than the cost of abatement. In addition, existing pollution taxes have been ineffective in encouraging State-owned enterprises to abate pollution, which is certainly borne out by the experience of China and countries in Eastern Europe.

46. In addition, there is often a confusion of purpose for pollution and other environment taxes. Often an environmental rationale has been used to justify the introduction of a tax. In practice, few environment taxes have the purpose of internalizing the social costs associated with pollution-induced environmental degradation. For example, some environment taxes are implemented as user charges to offset the cost of effluent treatment by firms; others function as fines for emissions beyond a quantitative target level; and others function as earmarked taxes raising revenue for extrabudgetary environmental funds.

47. Experience has shown that even when pollution taxes (charges) are introduced as revenue-raising mechanisms, there can be an incentive role as a

by-product. There is also a possibility that a system that was initially designed for revenue raising can eventually evolve into an incentive system. This has been demonstrated, for example, by the system of water pollution charges in the Netherlands. On the other hand, there have been instances in which incentives have been introduced from the outset, leading to substantial reductions in emissions (nitrous oxide) and sulphur taxes in Sweden.

(b) Natural resource taxation

48. Governments use several fiscal instruments to capture rents from natural resource extraction and harvesting, reflecting their role as sovereign tax powers and owners of natural resources. As owners of natural resources, Governments must determine when to exploit their natural resources and ensure that they get an appropriate price for its resources. There are various types of prices charged for the use or exploitation of government-owned natural resources, the most common being royalties, lease bonuses and licence fees.

49. Underpricing of government-owned natural resources occurs when Governments do not ensure that natural resources are adequately priced, or when private firms do not face the costs of environmental degradation caused by extracting or harvesting natural resources. Therefore, underpricing is a policy failure that can lead to excessive exploitation and harvesting of natural resources and rent-seeking behaviour. Such rents are the difference between the price of the resource and the cost of extracting the resource (including a profit margin and perhaps a risk premium). A key policy objective is to design a fiscal regime that will allow the Government to adequately capture such rents.

50. In practice, the ongoing reform of natural resource fiscal regimes in various countries has a long way to go in mobilizing substantial additional budgetary resources and at the same time discouraging excessive extraction and harvesting of natural resources. Forests are a good example of the difficulties of adequate natural resource pricing and successful capturing of rents. In many countries, forest resources have been underpriced for a variety of reasons. For example, timber royalties are set too low, or the real value of a specific rate of royalties has been eroded by inflation. In addition, in some countries fiscal regimes for the forestry sector have been excessively complex, with a multitude of charges and fees, or Governments do not have the capacity to adequately enforce existing fiscal regimes. Empirical studies undertaken to measure the capture of rents accruing to the harvest of forest resources show great divergencies between countries.

51. Another good example of the difficulties of resource pricing is mineral resources. Studies have shown that many countries in Asia manage to capture over 80 per cent of the rent accruing to the extraction of mineral resources, partly because of clear property rights. However, this may be changing as countries lower their rent capture in response to international competition for new mining investments and declining international commodity prices.

(c) Emission trading schemes

52. The emission trading programme for air pollution, which was introduced in the United States during the 1970s and subsequently amended since that period,

covers all significant stationary sources of pollution for five principal air pollutants (hydrocarbons, oxides of nitrogen, particulate matter, sulphur oxides and carbon monoxide). Different emission trading options or programmes are available, depending on the type of pollution source, including netting (introduced in 1974) and offsets (established in 1976).

53. The control cost savings vary widely among the programmes. Netting has resulted in the greatest cost saving, estimated at between US$ 525 million to US$ 12 billion. The cost savings for offsets are estimated to be in the order of hundreds of millions of dollars. Most estimates place the accumulated capital savings for all components of the programme at over US$ 10 billion. It is, however, extremely difficult to determine exactly how much of the improvements in air quality can be attributed to the emissions trading programme.

2. Subsidies

54. In the context of rising public sector deficits and debt, more and more questions are raised concerning the distortionary effect of many existing subsidy schemes in OECD countries and elsewhere. It is argued that Governments have encouraged unsustainable behaviour by providing subsidies or tax incentives, and it has been emphasized that the reform of such schemes could achieve a more efficient allocation of economic resources that will generate environmental benefits.

55. However, the situation is not likely to be as simple as this in actual practice. Indeed, subsidies may generate either positive or negative environmental effects, as well as positive or negative economic effects. For example, subsidies to agricultural producers may result in more land being used for agriculture than would otherwise be the case, which may restrict other land uses, especially for forestry and wetlands, both of which often have significant environmental values. On the positive side, public assistance to rail, combined transport and public transport infrastructure may be helping to reduce pollution loads by shifting modal choices away from road transport.

56. Subsidies may also generate either positive or negative economic effects. For example, they may shift the burden of payment for pollution away from the actual source of that pollution (violation of the polluter pays principle), thereby distorting resource allocations. On the other hand, they may also reward and thereby help and promote the creation of new public goods, such as environmental improvements.

57. In addition, the distributive consequences of subsidies need to be considered. For example, reducing existing subsidies would probably have negative financial effects on those who currently receive them, but their economic and environmental implications may be quite different.

58. The net effects of subsidies will consequently be an empirical question. Again, the net effects of reforming subsidy programmes will not automatically result in improvements for either the environment or the economy. The actual

effects of any reductions will depend on the context in which the subsidies were granted in the first place and on the specific way in which they are reduced.

59. Unfortunately, empirical information about the level of existing subsidies is scarce, information about their impact on the economy is even more difficult to obtain, and determining their impact on the environment is extremely difficult.

60. It will therefore be pragmatic to first give a brief overview and rough evaluation of existing subsidy regimes and the rationale behind them, outline what would be required to make an assessment of subsidies that would be sound enough to serve as a basis for policy reforms, and briefly discuss current initiatives in this regard.

(a) Major characteristics of existing subsidy regimes

61. The volume of current subsidies is impressive. For example, cash subsidies to businesses for the period 1975 to 1990 averaged 2.5 per cent of GDP for all countries. Moreover, total subsidies and transfers from central Governments for the period 1975 to 1990 accounted for approximately 11 per cent of GDP for all countries. As a share of total central government expenditures and net lending for the same period, subsidies and transfers accounted for approximately 32 per cent for all countries.

62. Sectoral studies on subsidies in the areas of energy, transport, agriculture and water management provide a more concrete illustration of current subsidization practices. For example, for energy it has been estimated in the past that, excluding electricity subsidization, subsidies for fossil fuels are in excess of US$ 210 billion (approximately 50 per cent of this amount for petroleum products, 33 per cent for natural gas, and 17 per cent for coal). These subsidies account for 20 to 25 per cent of the value of fossil fuel consumption at world prices. In the transport sector, OECD countries have heavily subsidized road transportation. It has been estimated that in the United States, road transport pays for only 79 per cent of its total costs through taxes and tolls paid by road users, the remaining costs being borne by the Government in what amounts to a direct subsidy to road transport. It is also argued that the cost of accidents, noise, air pollution, congestion and climate change (external costs of transport) must be treated as transport subsidies. Unfortunately, transport studies on developing countries are lacking, mainly because insufficient data is available.

63. OECD countries subsidize agriculture by a variety of policies, ranging from domestic support measures and supply controls to trade and rural adjustment measures. OECD calculates total agricultural subsidies in OECD countries at US$ 350 billion in 1994, equal to 1.8 per cent of GDP, or nearly US$ 400 per capita. Studies of developing countries in Asia, Latin America and Africa found high effective subsidy rates. Irrigation subsidies exist in both developed and developing countries. For example, it is estimated that irrigation subsidies in the United States amount to approximately US$ 1 billion annually. In developing countries, cost recovery of water services is estimated at approximately 35 per cent. Cost recovery for irrigation is also low, and is estimated at 25 per cent.

(b) Attempts to assess subsidy regimes

64. Various attempts have been made to analyse the economic and environmental efficiency of subsidies in the areas of energy, transport, agriculture and water management in a systematic way. For example, in the area of energy it has been estimated that the removal of fossil fuel subsidies would reduce carbon emissions by 7 per cent. Other researchers have calculated that the removal of all energy subsidies in non-OECD countries could reduce carbon dioxide emissions by 20 per cent in the case of instantaneous subsidy reduction. Over a 20-year time period, the reduction would be 10 per cent, which is equivalent to 7 per cent of global emissions.

65. Transport studies in the United States have estimated that a subsidy removal by charging user fees or gasoline taxes would reduce carbon dioxide emissions by 10 to 15 per cent in a 20-year period and that a mix of targeted policies (tax, regulation and information) is likely to be most effective.

66. Economic and environmental benefits from the removal of agricultural subsidies have been estimated for several countries. For example, World Bank studies have illustrated how agricultural subsidies contributed to the underpricing of environmental resources, resulting in land degradation and pollution. Furthermore, subsidizing water prices to keep the price of water low for the poor has not worked well in practice. Prices of water bought by the poor (vended water) tend to be much higher than piped city water (as much as 12 times higher).

67. Attempts to assess the economic and environmental efficiency of existing subsidies have succeeded in giving some idea about the magnitude of total subsidies. Furthermore, past and current assessments have indicated to what extent subsidies in various sectors have failed to reach their original purpose and/or are no longer justifiable on efficiency or equity grounds.

(c) Improving the assessment of subsidy regimes

68. Due to tight budgets in developed countries, developing countries and economies in transition, policy makers are showing increasing interest in saving on scarce budgetary resources by launching reviews of existing subsidy regimes. They hope that subsidy reforms will at the same time realign the incentive structure in favour of environmentally sound practices, remove economic distortions that hinder efficiency and economic growth, and lead to a more equal income distribution by curtailing the benefits of subsidies to the rich.

69. In addition to national efforts, developed countries have taken steps in the international arena. The environment ministers of the G-7 countries at a meeting in Hamilton, Canada in May 1995, requested that OECD review subsidies to promote sound environmental practices in OECD countries.

70. Subsidies may generate positive or negative economic and environmental effects, and the assessment of the net effect is an empirical question. However, for too long not enough attention has been paid to discerning the beneficial from the distortionary subsidies. Confronting the results of

existing subsidy regimes with policy objectives will facilitate policy evaluation and may initiate policy reforms.

71. In order to discern the beneficial from the distortionary subsidies, it will be necessary to undertake systematic assessments of subsidy regimes. For assessments to be more systematical, it will be important to (a) arrive at a clearer definition of subsidies, (b) develop more suitable indicators for measuring the magnitude of subsidies and (c) improve on the impact assessment of subsidies.

72. In response to the request of the G-7 environment ministers, OECD is currently developing a two-year project to assess the value and magnitude of subsidies, develop a conceptual framework for evaluating the repercussions of subsidies on the environment, and develop policy recommendations on the desirability of the removal of certain subsidies and the implementation of such a policy.

73. In addition, the Earth Council has embarked on a project to study economic incentives for sustainable development, with an emphasis on subsidies. The Council intends to make a significant contribution to the analysis of subsidies and come forward with policy proposals for an international effort to reduce environmentally damaging subsidies.

C. Strengthening the revenue base of national environmental funds

74. At its third session, the Commission addressed the usefulness of national environmental funds (NEFs) in various groups of countries and its discussion was supported by a brief analysis (see E/CN.17/1995/8). The Commission felt that it was important to explore ways and means of strengthening the revenue base of NEFs from external resources. The following discussion will concentrate on this issue.

75. External resources may be channelled through NEFs in the form of grants or concessional (soft) loans from bilateral donors, or market-rate loans from international financial institutions (IFIs) or international commercial banks. Bilateral donors may find that using the NEFs as intermediaries for financing environmental investments can provide a number of advantages. For example, NEFs have often accumulated expertise in identifying promising environmental projects. In addition, some bilateral donors and IFIs may face problems finding local counterpart funding, and NEFs can provide resources for co-financing. NEFs may also be better able to undertake innovative financing arrangements than government ministries. 4/

76. Various obstacles to using NEFs as an intermediary for donor assistance have been identified. 5/ Key areas of concern are that NEFs (a) may not address wider social and economic issues; (b) do not manage to sufficiently integrate local communities in the decision-making process; and (c) do not provide the legal and financial safeguards that donors require. Other important areas of concern are that NEFs may not be well equipped to offer donors the visibility they require and incur rather high administrative costs.

77. It appears that some of these concerns are exaggerated or can be overcome. For example, as far as the issue of a lack of concern for general development objectives is concerned, it is evident that many NEFs do go beyond immediate environmental concerns to address the social and economic causes of environmental problems. Furthermore, NEFs in the Philippines, Colombia and Uganda have demonstrated that participation of local communities in the decision-making process can be ensured. Moreover, experience has shown that legal safeguards for donors can be ensured through the use of revocability clauses and checks and balances in the management and voting procedures of NEFs.

78. It is evident that for donors, NEFs are not a substitute for delivering development aid directly. NEFs are a tool that donors can call upon when approaching the problems of any particular country; it is important that over the coming years efforts be made to further develop that tool.

III. FEASIBILITY OF INNOVATIVE MECHANISMS FOR FINANCING THE PROTECTION OF THE GLOBAL ENVIRONMENT

79. While such mechanisms as international environmental agreements and the Global Environment Facility (GEF) can make a significant contribution to mitigating global environmental problems, recent discussions in the Commission and other international forums have focused on additional mechanisms in the form of global taxes and user charges for financing global environmental efforts. Examples include an internationally agreed tax on air transport, the Tobin tax and a global carbon tax (a number of European countries have introduced national carbon taxes). It is argued that such innovative mechanisms should be pursued in parallel with efforts to increase ODA as a percentage of GNP, replenish the GEF in a substantial way and encourage private-sector investment in sustainable development.

80. Advocates of such taxes and charges tend to assume that they would easily become widely accepted by national Governments, and have thus chosen to focus on technical details. Unfortunately, this may not be a realistic approach because global taxes and charges, even if technically feasible, may not be readily accepted. It seems that there is currently little willingness on the part of many Governments to cede sovereign taxation power to any international body. In addition, global taxes would probably result in enormous wealth transfers, depending on the design of individual taxes, which by itself will make the negotiation of global taxes extremely difficult.

A. Internationally agreed tax on air transport

81. Some work on substantive and technical aspects of an internationally agreed tax on air transport (IATT) (see E/CN.17/1995/8), has been undertaken since the third session of the Commission, in particular on identifying an appropriate tax base; estimating the revenue potential of the tax; and examining the likely effect of the tax on emissions and its contribution to reducing ozone depletion and greenhouse gases. It will, however, be necessary to arrive at more concrete results.

82. If the IATT were tied to the turnover of airlines, it could not be expected to be successful in internalizing the cost of pollution because the turnover of air transport is not closely linked to emissions: there is no proof that air transport turnover is directly related to greenhouse gas emissions or ozone depletion.

83. Air distance travelled, aircraft fuel consumption and average age of airplanes may be more direct proxies for the level of emissions. Ideally, the tax should be designed in such a way that it would contribute to reducing the average age of airline fleets and encourage the adoption of cleaner engine technologies.

84. Based on the total air distance travelled (passengers and freight) of 270 billion kilometres in 1994 and a per unit tax of US$ 0.004 per kilometre, some US$ 1 billion per annum would be raised.

B. Tobin tax

85. The Tobin tax has attracted much attention lately, both in terms of policy dialogue and research. For example, the Office of Development Studies of the United Nations Development Programme organized a seminar on the subject in 1995. In the same year, the United Nations Conference on Trade and Development issued a discussion paper on the case for the Tobin tax. 6/

86. Although the Tobin tax is effectively a financial excise tax, it is discussed more for its revenue potential than its relation to the global environment, which is understandable in view of its huge revenue potential: given that the daily turnover in foreign-exchange conversion is estimated at about US$ 1.2 trillion, a Tobin tax of 0.01 per cent on the value of each transaction would yield some US$ 30 billion a year (based on 250 business days per year).

87. Critics have argued that the Tobin tax as it was originally conceived would not be viable because it does not permit discrimination between speculative flows and normal liquidity required in trading. Moreover, the high substitutability of financial products would render the taxation of spot transactions in foreign-exchange conversion ineffective against speculative activities. In addition, when reasons exist for expectations against a prevailing foreign-exchange rate, speculative activities in foreign-exchange markets would not be entirely eliminated because gains from speculation could easily exceed the revenues from a low-rate Tobin tax.

88. While new variations of the Tobin tax have been suggested in the course of time, five criticisms of the economic and environmental justification of the tax have been made. First, like all taxes it would introduce an efficiency cost. Second, its distributional impact would be complex and could not be predicted with any certainty. Third, its focus on reducing exchange-rate volatility would be tantamount to treating the symptoms of foreign-exchange markets without attending to the political and economic main causes of foreign-exchange volatility, in particular monetary and fiscal policies. Fourth, it is not directly linked to the causes of environmental degradation, and its role in

addressing environmental problems would therefore not be clear. Finally, although technical questions of revenue raising and distribution have been studied by academic researchers to some extent, national Governments have not yet been involved.

C. Activities implemented jointly

89. At the first session of the Conference of the Parties held in Berlin in 1995, the Parties took the decision to undertake a pilot phase for activities implemented jointly (AIJ) under the United Nations Framework Convention on Climate Change. 7/ The decision states, inter alia, that such activities are neither considered as a fulfilment of the current commitments of annex I Parties 8/ under article 4.2.(a) of the Convention if a non-annex I is involved, nor do they in any way modify the commitments of each Party to the Convention. It was decided that no credits should accrue to any Party as a result of greenhouse gas reduced or sequestered during the pilot phase from AIJ.

90. By taking the decision to establish a pilot phase, the Parties identified the need to gain experience with the practical and conceptual implications of AIJ. They intend to keep this pilot phase under review and to decide before the end of the decade whether a progression beyond the pilot phase should take place.

D. Tradeable carbon dioxide permits

91. The role of pilot schemes as a key to further progress towards the launching of a system of internationally tradeable carbon dioxide permits was discussed at the third session of the Commission (see E/CN.17/1995/8). In the meantime, a preliminary development plan for a pilot global warming emissions trading programme has been prepared under the sponsorship of the Earth Council with the goal of implementing such a programme starting in 1999. The plan has received strong interest from numerous major industrial corporations, national Governments, environmental groups and international agencies.

92. Currently, a plan is being formulated to establish a private entity to implement and oversee the pilot trading programme. A core component of the market will be the Global Environment Trading System (GETS), a shareholder-owned business that will facilitate transactions in the market. The GETS entity is anticipated to be incorporated in a tax-advantaged locale, and will be initially capitalized with US$ 5.5 million.

IV. FINANCING THE TRANSFER OF ENVIRONMENTALLY SOUND TECHNOLOGIES

A. Specific problems

93. The Commission made substantial progress at its third session in identifying and analysing various mechanisms and instruments for the financing of environmentally sound technologies (ESTs), and it indicated that in its

future work it would focus on improving the conditions for financing from external financial resources, facilitating access to traditional national financing mechanisms, and promoting innovative mechanisms for the financing of ESTs (see E/CN.17/1995/8).

94. In addition, the Commission clarified that it intended to emphasize the development of concrete policies and measures in order to increase the policy impact of its work. It will therefore be necessary to analyse in greater depth the process of technology transfer; identify the types of recipients of technology transfer that require improved access to finance; clarify to what extent difficulties in financing environmental technologies differ from problems in financing other production inputs; and investigate to what extent the financial sector has the experience and skills required to judge the creditworthiness of investments in either pollution abatement or cleaner production technologies.

95. While substantial research on these and other related questions still needs to be undertaken, some indications are given below to stimulate the discussion at the present session of the Commission.

96. In discussing access to the financing of ESTs, it is important to differentiate between the requirements and problems of different types of firms, in particular firms that produce non-environmental products and plan to incorporate ESTs in their production process, and firms that manufacture and/or distribute environmental technologies. It is also important to emphasize that the total financial requirement is not only related to hardware, such as technology and physical equipment, but also to software, such as installation, training and servicing.

97. As mentioned above, it will be very important to clarify to what extent issues related to the financing of ESTs differ from other issues of access to finance for firms: the answer to this question is essential for focusing the discussion on the financing of ESTs and not getting lost in investigating general issues of access to finance. For example, when discussing the financing of ESTs for small enterprises, the relevant question is: to what extent do enterprises face additional problems of access to finance when investing in integrating ESTs in their production process? And do small environmental firms have greater problems in access to finance than non-environmental firms? Another relevant question is: to what extent do current national and international programmes for the promotion of small enterprises address these issues?

98. The access of environmental firms to venture capital is a good illustration of this point that provides some interesting insights into a major problem of technology finance. In view of incomplete access to other country examples, the case of the United States of America is explored below.

B. Venture capital and equity finance for environmental firms

99. Venture capital investing in environmental technology in the United States provides a good illustration of the problems of funding the development of

environmental technology. In 1991, the 64 venture capital firms active in the United States invested a total of US$ 140 million in environmental firms. By 1993, the number of venture capital firms had fallen to 36 and the amount invested to US$ 100 million. By 1995, there remained just over 12 venture capital firms, investing a total amount of less than US$ 35 million.

100. Environmental firms were never a favourite of venture capital firms: although between 1980 and 1992 over US$ 30 billion in venture capital was invested in United States firms, less than 2 per cent of that sum was placed in environmental and energy-related investments.

101. In the United States, the relative lack of interest of venture capitalists in environmental firms is attributable to various factors. For example, it is difficult to forecast the growth of the highly segmented ESTs market, partly because of unforeseeable developments in environmental regulation. In addition, the poor performance of stocks of environmental firms makes it difficult for new firms to go public and thus provide an exit vehicle for venture capitalists. In addition, environmental firms tend to strongly emphasize the technology aspects of their businesses and at times neglect the importance of good management.

102. The example of the United States with regard to access to venture capital shows that it is not the availability of capital that is the limiting factor: such limitations are rooted partly in problems that are inherent to the business of environmental firms and partly in the management failures of a young industry. Some economies in transition and many developing countries face the additional problems of an underdeveloped venture capital industry and inefficient equity markets.

V. MATRIX OF POLICY OPTIONS AND FINANCIAL INSTRUMENTS: DEVELOPING ITS FORMAT AND CONTENT

103. Given the broad scope of mechanisms and instruments that can be applied to providing funding for the implementation of Agenda 21, there is a need for an overview in the form of a matrix to facilitate the work of the Commission. A rudimentary matrix was submitted to the Commission at its third session (see E/CN.17/1995/8); it was considered to be very useful. Members of the Commission felt, however, that there was a need for further developing its format and content.

104. Many of the policy options and instruments discussed in the matrix (see table 4) are currently in operation in several developed countries, economies in transition and developing countries, with varying degrees of success. Others are still at an experimental stage and will provide lessons for further refinement and adjustment to local conditions.

105. The format of the matrix could be further refined to provide estimates of the magnitude of the incentive and financing effect that would result from applying each policy option and instrument to each sector.

Notes

1/ "Development cooperation 1995 report: efforts and policies of the members of the Development Assistance Committee" (OECD, 1996).

2/ See also General Assembly resolutions 50/91 and 50/92.

3/ See "DAC policy statement on development partnership in the global context" (OECD, 1995).

4/ See "Environmental funds in economies in transition" (OECD, 1995), p. 35.

5/ See "Environmental funds for sustainable development", proceedings of a seminar for interested members of the OECD/DAC Working Party on Development Assistance and Environment (Paris, April 1995).

6/ See David Felix, "Financial globalization versus free trade: the case for the Tobin tax", United Nations Conference on Trade and Development Discussion Paper, No. 108 (Geneva, November 1995).

7/ Decision 5/CP.1; see FCCC/CP/1995/7/Add.1, p. 19).

8/ Annex I of the Convention includes developed countries contained in annex II, as well as countries that are undergoing the process of transition to a market economy.

Table 1 - Total net resource flows to developing countries (Current $ billion)

	1986	1987	1988	1989	1990	1991	1992	1993	1994p	Per cent of total 1986	1989	1994
I. OFFICIAL DEVELOPMENT FINANCE (ODF)	**50.1**	**56.5**	**61.1**	**60.9**	**69.7**	**69.6**	**70.5**	**69.5**	**70.2**	**66.9**	**52.7**	**38.2**
1. Official development assistance (ODF)[a]	38.5	43.7	47.7	48.8	52.8	58.5	59.5	56.2	59.7	51.5	42.2	32.5
of which: Bilateral disburs.	29.8	33.8	36.6	36.4	39.3	42.3	42.0	39.6	41.3	39.9	31.5	22.5
Multilat. "	8.7	9.9	11.1	12.4	13.5	16.2	17.5	16.6	18.4	11.6	10.7	10.0
2. Other ODF	11.6	12.8	13.4	12.1	16.9	11.1	11.0	13.3	10.5	15.5	10.5	?
of which: Bilateral disburs.	3.8	6.2	7.0	5.3	6.7	4.4	7.4	6.4	6.8	5.7	4.6	3.7
Multilat. "	7.8	6.6	6.4	6.8	10.2	6.7	3 6	6.9	3.7	10.4	5.9	2.0
II. TOTAL EXPORT CREDITS	**-0.6**	**-1.6**	**-2.2**	**9.4**	**4.7**	**1.8**	**1.3**	**-0.9**	**3.2**	**-0.8**	**8.1**	**1.7**
of which: short-term	3.0	4.1	2.0	4.8	4.5	-0.8	0.5	-1.5	0.2	4.0	4.	0.1
III. PRIVATE FLOWS	**25.3**	**30.7**	**39.1**	**45.3**	**51.8**	**50.8**	**76.8**	**94.1**	**110.4**	**33.8**	**39.2**	**60.1**
1. Direct investment (DAC)	10.7	19.4	21.8	26.5	26.4	22.6	27.3	38.8	47.0	14.3	22.9	25.6
of which: to offshore centres	5.8	10.9	8.9	6.5	7.1	6.5	9.5	9.8	..	7.8	5.6	..
2. International bank lending[b]	7.0	7.0	7.8	10.5	15.0	11.0	31.0	9.0	21.0	9.4	9.1	11.4
of which: short term	-4.0	5.0	4.0	8.0	7.0	12.0	25.0	7.0	15.0	-5.3	6.9	..
3. Total bond lending	1.0	-1.0	1.6	2.2	0.9	6.5	11.1	36.6	32.7	1.3	1.9	17.8
4. Other private[c]	3.3	1.3	3.7	2.1	4.4	5.3	1.4	4.0	4.0	4.4	1.8	2.2
5. Grants by non-governmental organisations	3.3	4.0	4.2	4.0	5.1	5.4	6 1	5.7	5.7	4.4	3.5	3.1
TOTAL NET RESOURCE FLOWS (I+II+III)	**74.8**	**85.6**	**98.0**	**115.6**	**126.2**	**122.2**	**147.8**	**162.7**	**183.8**	**100.0**	**100.0**	**100.0**
Memorandum items:												
Total net credits from IMF	-2.0	-4.7	-3.9	-2.1	-2.2	1.0	-0.3	-0.7	-0.5			
Recorded asset transactions by LDCs, net	-12.0	-9.1	-20.5	-18.2	-22.8	47.4	6.7	-25.3	..			
Interest and dividends paid by LDCs, gross	-73.1	-75.2	-89.9	-91.7	-86.3	-82.3	-85.7	-81.3	-90.4			
Total official grants	25.4	28.0	31.8	32.9	39.7	45.6	44.9	42.7	45.0			
Total intra-LDC flows (ODA)[d]	4.1	3.3	2.2	1.7	6.0	2.6	1.0	1.2	1.2			
At 1993 prices and exchange rates												
Total net resource flows	110.5	109.4	116.3	138.5	135.3	126.7	144.4	162.7	176.4			
Total official development finance	74.0	72.2	72.6	73.0	74.7	72.2	68 9	69.5	67.4			
Total ODA receipts	56.9	55.8	56	58.5	56.6	60.7	58.1	55.2	57.3			
Total DAC ODA (bilateral and multilateral)	53.8	52.9	57.	56.1	58.2	60.1	60.8	56.5	56.7			

a) Excluding forgiveness of non-ODA debt for the years 1990 to 1992.
b) Excluding bond lending by banks (item III.3), and guaranteed financial credits (included in II).
c) No reporting has been received from DAC Members on portfolio equity investment.
d) Not included in total net resource flows.

Source: Development Co-operation 1995 Report, OECD 1996, Table III.1

Table 2 - Trends in the Volume and Allocation of Official Development Assistance

	$ million		Per cent of GNP		Per cent Change 1994/3	
	1993	1994	1993	1994	In dollars[a]	In real terms[b]
I. In 1994 four countries reached the 0.7 per cent of GNP UN target for ODA						
Norway	1 014	1 137	1.01	1 05	12.1	11 2
Denmark	340	1 446	1.03	1.03	7.9	2 2
Sweden	1 769	1 819	0 99	0 96	2 9	-0 9
Netherlands	2 525	2 517	0 82	0 76	0 3	-4 2
II. Six other countries reached 0.35 per cent						
France	7 915	8 466	0 63	0 64	7 0	3 4
Canada	2 373	2 250	0 45	0 43	-5 2	-0 2
Luxembourg	50	59	0 35	0 40	19 9	13 4
Switzerland	793	982	0 33	0 36	23 8	12 7
Australia	953	1 088	0 35	0 35	14 1	5 0
Portugal	248	308	0 29	0 35	24 5	22 9
III. Eleven countries were below 0 35 per cent						
Germany	6 954	6 818	0 36	0 34	-2 0	-6 0
Austria	544	655	0 30	0 33	20 4	14 8
Belgium	810	726	0 [illegible]	0 32	-10 4	-15 1
Finland	355	290	0 45	0 31	-18 3	-21 2
United Kingdom	2 920	3 197	0 31	0 31	9 5	5 2
Japan	11 259	13 239	0 27	0 29	17 6	7 9
Spain	1 304	1 305	0 28	0 28	0 1	0 9
Italy	3 043	2 705	0 31	0 27	-11 1	-11 7
Ireland	81	109	0 20	0 25	34 2	29 3
New Zealand	98	110	0 25	0 24	12 4	0 5
United States	10 123	9 927	0 16	0 15	-1 9	-4 0
Total DAC countries	**56 472**	**59 152**	**0.31**	**0.30**	**4.7**	**0.5**

a) At current prices and exchange rates.
b) At 1993 prices and exchange rates.

Source: Development Co-operation 1995 Report, OECD 1996, Table IV 1

Table 3 - Total disbursed debt of developing countries at year-end 1986-94 by source and terms of lending

Current $ billion

Long-term debt	1986	1987	1988	1989	1990	1991	1992	1993	1994
I. OECD COUNTRIES AND CAPITAL MARKETS	**615**	679	664	665	665	668	690	711	777
A. ODA	90	112	113	115	127	136	139	147	163
B. Total export credits	172	202	176	187	202	211	234	241	267
Official export credits	79	94	87	92	95	103	115	114	110
Guaranteed supplier credits	30	34	26	27	28	27	36	36	45
Guaranteed bank credits	63	74	63	68	79	81	83	91	112
C. Financial markets	353	365	375	363	326	321	317	323	347
Banks	310	318	325	307	267	256	244	218	223
Bonds	43	47	50	56	59	65	73	105	124
II. MULTILATERAL	**172**	211	203	209	236	253	257	270	295
of which: Concessional	48	58	61	66	75	84	90	97	110
Non-concessional	124	153	142	143	161	169	167	173	185
Memo: Total IMF	40	41	34	32	32	33	32	31	32
III. NON-OECD CREDITOR COUNTRIES	126	151	151	161	164	165	171	174	168
Sub-total: Long-term debts	**913**	**1041**	**1018**	**1035**	**1055**	**1086**	**1118**	**1155**	**1240**
of which: Concessional	200	242	266	278	300	322	334	350	379
Non-concessional	717	799	759	764	761	772	783	807	862
Short-term debt									
Banks	178	192	192	197	232	247	290	316	362
Export credits	38	44	47	50	67	74	68	62	68
Sub-total: Short-term debt	216	236	239	247	299	321	358	378	430
Other identified liabilities	20	20	27	23	27	28	34	37	4
Total external debt	**1149**	**1297**	**1284**	**1305**	**1381**	**1435**	**1510**	**1570**	**1714**

Source: Development Co-operation 1995 Report, OECD 1996, Table III.1

Table 4. Matrix of policy options and financial instruments

SECTORS	ECON & FINANCIAL REFORMS	PROPERTY RIGHTS	RENT CAPTURE/ RESOURCE PRICING	SUBSIDY REDUCTION	TAXATION	ENVIRON. CHARGES	INNOVATIVE DOMESTIC MECHANISMS	INNOVATIVE GLOBAL MECHANISMS
SUSTAINABLE DEVELOPMENT	competitive capital markets	secure property rights	full-cost pricing	reduce energy & capital subsidies	• green taxes • reduction of distortionary taxes	depletion of pollution charges	• ecolabelling • ecofunds • sustainable development equity funding	joint implementation
BIODIVERSITY	• enviro. funds • venture capital	biodiversity patents	prospecting fees	reduce land conversion subs	habitat protection subsidy	deforestation charge	• bioprospecting fees • ecotourism fees • scientific tourism fees	• patents • intellectual property rights • TCCs
FOREST RESOURCES	enviro. funds	• long-term concessions • bidding	forest product pricing	• below-cost timber sales • conversion sub	forest concession taxes	deforestation charge	• watershed chgs • tradable reforest credit	• tradable forest protection obligation • carbon offsets
FRAGILE ECOSYSTEMS	enviro. funds	communal property rights	pricing of ecological functions	removal of land conversion and agrochem. subs	differential land-use taxes	deforential land use charges	• relocation incentives • TDRs	TCCs
FRESH WATER RESOURCES	municipal bonds	water rights	• user charges • marginal cost pricing	subsidies to water cons. & irrigation	differential land-use taxes	sewage & effluent charges	tradable water shares	water trading across borders
LAND RESOURCES	capital market reforms	• no titles for land clearing • secure land ownership	public land pricing	• agricul. subsidy • below-cost public land sale/lease	• property taxes • land-use taxes • transfer taxes	• impact fees • waste disposal charges	• betterment chgs • differential land-use charges	• tradable development rights • debt swaps
SUSTAINABLE AGRICULTURE	removal of interest rate ceilings	secure land ownership	water pricing	• water subsidies • agrochem. subs	• agrochem. taxe • IPM subsidies	differential land-use charges	• differential land-use charge • ecolabelling	• int'l sustainability standards/price premia • carbon offsets
ATMOSPHERE	privatization of inefficient state enterprises	emission entitlements	energy pricing	energy subsidies	energy taxes	emission charges	tradable SO_2 emission permits	• tradable CO_2 permits • carbon offsets
OCEANS		200 mile EEZ fishing licenses	fishing input pricing	• agrochem. subs	Agrochem. taxes	effluent charges	individual tradable quotes	oil spill bonds
HAZARDOUS WASTE/TOXIC CHEMICALS	industrial environmental funds	manifest system	full-cost pricing of chem./toxic metals	removal of chem. input subs	• chem. feedstock taxes • diff. taxation • taxes on che	• presumptive charges • feedstock chgs	• environmental bonds • waste delivery incentives	ban of int'l trans. of hazardous waste
SOLID WASTE	municipal bonds	privatization of service	full-cost pricing of raw materials	removal of depletion allow. & subs. of raw mats	• property taxes • taxes on packaging mat (paper, plastic)	collection & disposal charges	• general deposit refund system • recycling incentive	tradable recycled content
URBAN ENVIRONMENT	• municipal bonds • IIOT	• TDRs • mad tolls • pollution permits	marginal-cost pricing of public utilities	• energy subsidies • water subsidies	• property taxes • relocation incentives for industry	pollution charges	• betterment chgs • TDRs • tradable emission permits, IIOC	• joint implementation of energy efficient projects

Table 4 (continued)

ABBREVIATIONS USED IN MATRIX

BOT:	Build-operate-transfer
IPM:	Integrated pest management
EEZs:	Exclusive economic zones
TCCs:	Tradeable conservation credits
TDQs:	Transferable development quotas
TDRs:	Transferable development rights
environ:	environmental
chem:	chemical
hvy:	heavy
subs.:	subsidies
agricul:	agriculture
agrochem:	agrochemical
allow.:	allowances
mats.:	materials
diff:	differential
chgs:	charges
reforest.:	reforestation
int'l:	international
trans.:	transport